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1. Write four different Java statements that each add 1 to integer variable x.
    a. x += 1;
    b. x = x + 1;
    c. ++x;
    d. x++;
2. Write Java statements to accomplish each of the following tasks:
    a. Use one statement to assign the sum of x and y to z, then increment x by 1.
        i. x = y + x++;
    b. Test whether variable count is greater than 10. If it is, print "Count is greater than 10".
        i. if (count > 10) System.out.println(“Count is greater than 10”);
    c. Use one statement to decrement the variable x by 1, then subtract it from variable total and store the result in variable total.
        i. total -= --x;
    d. Use two ways to write a statement that will find the remainder of q and divisor using modulo.
        i. q = q % divisor;
        ii. q %= divisor;
3. Determine the values of the variables (product and x) in the statement product *= x++; after the calculation is performed. Assume that all variables are type int and initially have the value 5.

    int product = 5
    int x = 5
    product *= x++;
    product = 5 * 5 + 1
    product = 25
    x = 6
4. Assume that i=1, j=2, k=3 and m=2. What does each of the following statements print?
    a. true
    b. false
    c. true
    d. false
    e. true
    f. false
    g. false

5. Write a Java statement or a set of Java statements to accomplish each of the following tasks:
    a. Sum the odd integers between 1 and 99, using a for statement. Assume that the integer variables sum and count have been declared.
        i. // No need for variable count.
        ii. for (int i = 2; i < 99; i ++) {
        iii. if (i % 2 != 0) {
        iv. sum += i;
        v. }
        vi. }
    b. Calculate the value of 2.5 raised to the power of 3, using the pow method
        i. double result = Math.pow(2.5, 3);
    c. Print the integers from 1 to 20, using a while loop and the counter variable i. Assume that the variable i has been declared, but not initialized. Print only five integers per line.
    [Hint: Use the calculation i%5. When the value of this expression is 0, print a newline character; otherwise, print a tab character. Assume that this code is an application. Use the System.out.println() method to output the newline character, and use the System.out.print('\t') method to output the tab character.]

```
i = 1;
while(i <= 20) {
  System.out.print(i + “\t”);

  if (i % 5 == 0) {
    System.out.println();
  }
  i++;
}
```

    d. Repeat © but with a for loop.

```
for (i = 1; i <= 20; i++) {
  System.out.print(i + “\t”);

  if (i % 5 == 0) {
    System.out.println();
  }
}
```

6. Write a Java application that uses repetition and switch statements to print the song “The Twelve Days of Christmas.” One switch statement should be used to print the day (“first,” “second,” and so on). A separate switch statement should be used to print the remainder of each verse.

```
public static void main(String[] args) {
        // Loop through each day of Christmas
        for (int day = 1; day <= 12; day++) {
            // Print the day
            printDay(day);

            // Print the gifts for each day
            printGifts(day);

            // Print a new line to separate verses
            System.out.println();
        }
    }

    // Method to print the day
    private static void printDay(int day) {
        System.out.print("On the ");
        switch (day) {
            case 1:
                System.out.print("first");
                break;
            case 2:
                System.out.print("second");
                break;
            case 3:
                System.out.print("third");
                break;
            case 4:
                System.out.print("fourth");
                break;
            case 5:
                System.out.print("fifth");
                break;
            case 6:
                System.out.print("sixth");
                break;
            case 7:
                System.out.print("seventh");
                break;
            case 8:
                System.out.print("eighth");
                break;
```

```
            case 9:
                System.out.print("ninth");
                break;
            case 10:
                System.out.print("tenth");
                break;
            case 11:
                System.out.print("eleventh");
                break;
            case 12:
                System.out.print("twelfth");
                break;
            default:
                System.out.print("unknown");
                break;
        }
        System.out.println(" day of Christmas my true love sent to me:");
    }

    // Method to print the gifts for each day
    private static void printGifts(int day) {
        switch (day) {
            case 12:
                System.out.println("Twelve drummers drumming,");
            case 11:
                System.out.println("Eleven pipers piping,");
            case 10:
                System.out.println("Ten lords a-leaping,");
            case 9:
                System.out.println("Nine ladies dancing,");
            case 8:
                System.out.println("Eight maids a-milking,");
            case 7:
                System.out.println("Seven swans a-swimming,");
            case 6:
                System.out.println("Six geese a-laying,");
            case 5:
                System.out.println("Five gold rings,");
            case 4:
                System.out.println("Four calling birds,");
            case 3:
                System.out.println("Three French hens,");
            case 2:
                System.out.println("Two turtle doves,");
```

```
        case 1:
            System.out.println("And a partridge in a pear tree.");
            break;
        default:
            break;
    }
}
```